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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/874,420	06/05/2001	Michael Arnold Joffe	US010279	5691

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EXAMINER

YAM, STEPHEN K

ART UNIT PAPER NUMBER

2878

DATE MAILED: 05/09/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application N .

09/874,420

Examiner

Stephen Yam

Applicant(s)

JOFFE, MICHAEL ARNOLD

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– The MAILING DATE of this communication appears on the cover sheet with the correspondence address –

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 September 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 5 and 14 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. The specification does not describe any embodiment of the light source as comprising a liquid crystal display.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 9 recites the limitation "said first image" in line 3. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 7-8, and 10-13 are rejected under 35 U.S.C. 102(b) as being unpatentable by Kuniyoshi et al. US Patent No. 4,614,432. Kuniyoshi et al. teach a positioning system comprising a light source (Column 1, lines 29-33- traveling through Figure 5, ref. 10), a workpiece ("wafer" in Column 3, line 33 and Column 4, line 65-66- also Fig. 5, ref. 4), and a detector ("photo-multiplier" in Column 3, lines 53-56- also Fig. 5, ref. 9) identifying a reference image ("positioning pattern" in Column 1, lines 29-33, 50-53) upon the surface of the workpiece and processing a deviation direction and amount accordingly (by movement of the reticle according to Kuniyoshi's prior art in Column 1, lines 27-29). Regarding claim 2, Kuniyoshi et al. also teach a holding means ("moving table" in Column 4, line 66 to Column 5, line 1) comprising an X-direction moving table, a Y-direction moving table, and a Z-direction moving table, therefore allowing the workpiece to be secured and vertically adjusted. Regarding claim 3, Kuniyoshi et al. further teach the displacement of the wafer to match the reference image (Column 6, lines 35-41- also Claims 8-9). Regarding claim 4, Kuniyoshi et al. additionally teach the detector located above a normal axis of the workpiece, as seen in Figure 5, ref. 9. Regarding claim 10, Kuniyoshi et al. furthermore teach the detector as converting the detected light into electrical signals (through "photo-electrical conversion" on Column 1, line 44) and the attachment of a computer for derivation processing ("CPU" on Column 1, line 46). Regarding claims 11 and 12, Kuniyoshi et al. teach the table (Column 4, line 66 to Column 5, line 1- also Fig. 5, ref. 13,12,14) as comprising three separate tables able to move in the X, Y, and Z- directions respectively and allowing the workpiece to be secured and vertically adjusted (Column 4, line 66 to Column 5, line 1). Regarding claim 13, Kuniyoshi et al. teach the attachment of the

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CPU to the light detector and the X, Y, and Z movement of the workpiece, as described above, so it is evident that the CPU would determine a shift direction and such a direction could comprise movement in all of the X, Y, and Z axes, given the workpiece's ability to move in all three orthogonal directions.

Regarding claims 7 and 8, Kuniyoshi et al. teach the transmission of a light beam onto the top surface of the workpiece at a specific angle (as seen in the lack of movement of the "light guide" in Fig. 5, ref. 10), the detection of the light beam by Fig. 5, ref. 9, the determination of a center point (Column 1, line 62 to Column 2, line 2), and the determination of lateral distance between the center point and reference point, conversion to vertical distance, and positioning of workpiece accordingly, as taught in Column 6, lines 35-41, by the correction means by shifting the position of the wafer, in a vertical direction as described in Column 4, lines 52-55.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuniyoshi et al. in view of Yoshii et al. US Patent No. 5,969,820. Kuniyoshi et al. teach a positioning system detecting a deviation upon a workpiece with a reference image. Kuniyoshi et al. do not teach the detector comprising a photodiode camera. Yoshii et al. teach a positioning system with a detector comprising a CCD (charged-coupled device) in Column 5, lines 34-36, a

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form of a photodiode camera. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Kuniyoshi et al. with the CCD photodiode camera of Yoshii et al., to provide a simple photoelectric element of detection that is well known in the art.

Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kuniyoshi et al. Kuniyoshi et al. teach a positioning system detecting a deviation upon a workpiece with a reference image. Kuniyoshi et al. do not teach the determination of a center point using boundary signals. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Kuniyoshi et al. with a center-point determination method using the boundaries of the detected image, as it is common knowledge to process a designated reference point based on the edges of a surface, allowing for a comparison of a detected image with a reference image through alignment of the center point.

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kuniyoshi et al. Kuniyoshi et al. teach a positioning system detecting a deviation upon a workpiece with a reference image. Kuniyoshi et al. do not teach the use of a first and second light beam to provide an indication of distance. However, it is common knowledge to use a plurality of light beams to further increase the accuracy of surface-sensing devices. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the invention of Kuniyoshi et al. with two light beams, as that would allow for the use of triangulation in determining a position offset, and provide depth perception for vertical adjustment of the workpiece.

Conclusion

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The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Hata, US Patent No. 5,745,242, teaches a position detecting system with a light source, detection system, and drive means to control movement of a wafer.

Ikenaga, US Patent No. 4,701,053, teaches a position detecting system with a light source, detection system, table driver, and computer control section to process received image signals.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen Yam whose telephone number is (703)306-3441. The examiner can normally be reached on Monday-Friday 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seungsook Ham can be reached on (703)308-4090. The fax phone numbers for the organization where this application or proceeding is assigned are (703)308-7724 for regular communications and (703)308-7724 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0956.

sky
May 6, 2002

Kevin Pyo
Kevin Pyo
Primary Examiner